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60,130-1048; 01MRA0236

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Athar Shah
Serial No.: 09/846,044
Group Art Unit: 3634
Filed: May 1, 2001
Examiner: Gregory J. Strimbu
For: PROFILED BELT-TYPE REGULATOR
M/S AF
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

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SUPPLEMENTAL APPEAL BRIEF

Dear Sir:

This Supplemental Appeal Brief is in response to a Notification of Non-Compliance of 37 CFR 1.192(c) mailed on April 21, 2004.

The grouping of claims section has been supplemented to indicate that claims 25 and 28 stand and fall together. The Grouping of Claims section has also been modified to indicate where the argument supporting the grouping set forth may be found within the appeal brief.

CERTIFICATE OF MAIL

I hereby certify that the enclosed Supplemental Appeal Brief (in triplicate) is being deposited, in triplicate, with the United States Postal Service as First Class Mail, postage prepaid, in an envelope addressed to Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on May 21, 2004.

Lesley Upton

The Grouping of Claims under header A has been amended to delete reference to claims 8-10. However, claim 5 is appropriately included under heading A. Claim 5 does not have to be grouped with the claims that claim 5 was rejected. That is, the Appellant is not limited in how claims may be grouped based upon the Examiner's rejections. Here, claim 5 relies upon a combination of Osborn and Yamamura, which the Appellant argues is improper for the reason set forth relative to claim 1. Appellant is not arguing that claim 5 is patentable for the same reasons with respect to claim 6. Accordingly, claim 5 is appropriately grouped with rejection of claim 1, not claim 6.

The Examiner has argued that the Appellant has failed to set forth whether claims 1, 3, 4, 21 and 25-28 rejected by LeCompagnon in view of Colell stand or fall together. Appellant has already indicated in heading A that these claims stand and fall together regardless of whether the rejection is given under the Osborne and Yamamura combination or the LeCompagnon and Colell combination.

The patentability of claim 20 has been separately argued and is set forth under heading XI. Since claim 20 is argued as patentable over the art for three separate reasons (as argued under headings I, VI, VIII), claim 20 cannot be grouped with any other claims since claim 20 does not stand or fall with any particular single claim.

REAL PARTY IN INTEREST

The real party in interest Meritor Light Vehicle Technology, LLC of Troy, Michigan. Meritor Light Vehicle Technology, LLC is the Assignee of all right and title in this Application

from the inventor, as indicated in the assignment recorded on May 1, 2001 at reel/frame 011768/0066.

RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

STATUS OF CLAIMS

Claims 1, 3-7, 11, 12, 14-16, and 20-28 are presently pending in the application. Claims 25 and 28 stand finally rejected under §112, second paragraph. The rejection of claims 1, 3-7, 11, 12, 14-16, and 20-28 is being appealed.

STATUS OF AMENDMENTS

An Amendment After Final was filed on June 11, 2003 amending claims 23, 24, 25, and 28. The amendments to claim 25 and 28 cancelled language to overcome the §112 rejection presented in the March 31, 2003 Office Action. The Advisory Action mailed June 27, 2003 indicated that the amendments had not been entered. At a minimum, the Examiner should have entered the amendments to claim 25 and 28 to simplify the issues on appeal.

SUMMARY OF THE INVENTION

Referring to page 1 of the application, the invention provides a regulator assembly for driving a glass pane between open and closed positions in a vehicle utilizing a belt.

In the prior art, regulator assemblies are used to drive vehicle windows and sunroofs between open and closed positions. The assemblies typically include a drive mechanism to move the window and guides to define the path of movement. Numerous types of regulator assemblies have been used. For example, an arm and sector regulator typically used for windows incorporates a scissor-like device for opening and closing the window. Arm and sector regulator drive mechanisms typically incorporate a metal lever that is driven by a drive motor along a central guide, in addition to lateral guides. Arm and sector regulators utilize numerous specialized stampings unique to a particular window. Furthermore, the components are rather heavy.

Another type of regulator is commonly referred to as a drum and cable regulator. Drum and cable regulators incorporate a drive mechanism having one or more drums that carry a steel cable. The window is supported on the cable by a bracket. The window is moved between the opened and closed positions as the cable is driven about the drums. Over the life of the regulator, the cable tends to stretch thereby compromising the operation of the window regulator. Moreover, the drum and cable regulators typically require a control guide for the bracket, in addition to lateral guides. Similar to arm and sector regulators, the drum and cable regulator is typically rather heavy.

Referring to page 3, the present invention regulator assembly 10 is shown in Figure 1. Preferably, the regulator assembly 10 makes up a door module that may be secured to a door as a unit. With a door module embodiment, the regulator assembly 10 may include a panel 12. The regulator assembly 10 may also be used for sunroof applications. Spaced guides 14 support a glass support member 17 to which a window or glass pane W is secured. The guides 14 may include a rail 15 and follower 16 secured to the glass support member 17 for guiding the members 17 along

the rails 15. A flexible profile belt 18 is connected to the glass support member 17. The belt 18 includes opposing end portions 20. In one embodiment, shown in Figures 1 and 2, the belt 18 is supported at opposing end portions 20 by a support pulley 22 and a drive pulley 30. The support pulley 22 is connected to an upper bracket 24, which is secured to the panel 12. A drive motor 26 is connected to the drive pulley 30 and is supported by lower bracket 28, which is secured to the panel 12. The drive motor 26 provides a drive force for rotatingly driving the drive pulley 30 and moving the belt 18 relative to the drive pulley 30 to move the glass support member 17 between closed C, and opened O positions. The opened O and closed C positions are defined by stops 32, which may be secured to the brackets 24 and 28. A rod 34 may be connected to the brackets 24 and 28 for maintaining a distance between the pulleys 22 and 30 during installation. The rod 34 ensures that the belt 18 and drive pulley 30 remain in engagement with one another. However, if the panel 12 is used, the rod 34 may not be needed since the brackets 24 and 20 may be secured to the panel 12 prior to installation of the regulator assembly 10 to the door or other appropriate vehicle structure. If a panel 12 is not used, it may be more convenient to utilize the rod 34 between the brackets 24 and 28 to aid in installation of the regulator assembly 10 to the door.

With continuing reference to page 3, a mounting member 36 is secured to the belt 18 for connecting the glass support member 17 to the belt 18, as best shown in Figure 2. The mounting member 36 may be secured to the belt 18 in any suitable manner, such as by rivets or clamping. For the configuration shown in Figures 1 and 2, the glass support member 17 is fixed relative to the belt 18 so that it moves with the belt 18 as it is driven about the pulleys 22 and 30.

Referring to page 4, in the most preferred embodiment of the invention, the drive pulley 30 is a timing pulley, and the flexible belt 18 is a timing belt. For this type of belt and pulley arrangement, the belt and pulleys have complimentary profiles that interlock with one another. The drive pulley 30 includes spaced apart flanges 40 that ensure that the belt 18 does not slide from the pulley 30 as they move relative to one another. The drive pulley 30 includes a profile 42 having teeth arranged radially about the pulley. The belt 18 is preferably constructed from a rubberized fabric with embedded steel wires or other reinforcing members to maintain the structural integrity of the belt 18 under a variety of temperature and stress conditions. The regulator assembly 10 of the present invention is especially desirable since a wide range of the belts 18 are presently commercially available. Furthermore, the timing belts 18 are highly durable and resistant to stretching. Moreover, the interlocking profiles 42 and 46 prevent slippage of the belt 18 relative to the pulley 30.

Another embodiment of the regulator assembly 10 is shown in Figure 4. In this embodiment, the belt 18 includes terminal ends 48 that are fixedly supported to a member such as the panel 12, by brackets 24 and 28. A drive support 50 may support the drive motor 26. The belt 18 may be routed through idler pulleys 52 to ensure that the belt 18 maintains engagement with the drive pulley 30. The glass support member 17 is connected to the drive support 50 for movement between the open O and closed C positions. Stops 54 may be secured to the opposing portions 20 of the belt 18 to define the opened O and closed C positions.

ISSUES

- I. Is the phrase “belt position” in claims 25 and 28 indefinite under §112, second paragraph?
- II. Is the rejection of claim 1 under §103(a) over Osborn in view of Yamamura proper?
- III. Is the rejection of claim 21 under §103(a) over Osborn in view of Yamamura proper?
- IV. Is the rejection of claim 22 under §103(a) over Osborn in view of Yamamura proper?
- V. Is the rejection of claim 23 under §103(a) over Osborn in view of Yamamura proper?
- VI. Is the rejection of claim 1 under §103(a) over LeCompagnon in view of Colell proper?
- VII. Is the rejection of claim 6 under §103(a) over Osborn in view of Yamamura in further view of Shibata proper?
- VIII. Is the rejection of claim 12 under §103(a) over Osborn in view of Shibata proper?
- IX. Is the rejection of claim 15 under §103(a) over Osborn in view of Shibata proper?
- X. Is the rejection of claim 24 under §103(a) over Osborn in view of Shibata proper?
- XI. Is the rejection of claim 20 under §103(a) over Osborn in view Shibata in further view of Yamamura proper?

GROUPING OF CLAIMS

The term “contested” means that Appellant is appealing the rejection provided by the Examiner to the particular claim or claims. The claims are grouped together by letter, and the claims within a particular group stand or fall together. However, the claims of one group do not stand or fall with the claims of another group. The groupings below are given in order of claim number, and do not necessarily correspond sequentially to the issues set forth above.

A. The rejection of claim 1 is contested. Claims 1, 3-5, 7, 11, and 25-27 stand or fall together (see headings II and VI below).

B. The rejection of claim 6 is separately contested. No other claims stand or fall with claim 6 (see heading VII below).

C. The rejection of claim 12 is separately contested. Claims 12, 14, and 16 stand or fall together (see heading VIII below).

D. The rejection of claim 15 is separately contested. No other claims stand or fall with claim 15 (see heading IX below).

E. The rejection of claim 20 is separately contested. No other claims stand or fall with claim 20 (see heading XI below).

F. The rejection of claim 21 is separately contested. Claims 21 and 28 stand or fall together (see heading III below).

G. The rejection of claim 22 is separately contested. No other claims stand or fall with claim 22 (see heading IV below).

H. The rejection of claim 23 is separately contested. No other claims stand or fall with claim 23 (see heading V below).

I. The rejection of claim 24 is separately contested. No other claims stand or fall with claim 24 (see heading X below).

J. The rejection of claims 25 and 28 is separately contested and stand or fall together with respect to the rejection of those claims under §112 (see heading I below).

ARGUMENTS

The arguments below correspond sequentially to issues presented.

Rejections under §112

I. “Belt position” in claims 25 and 28 is definite.

The Examiner rejected claims 25 and 28 under §112, second paragraph because the Examiner argued that the phrase “belt position” was unclear. Appellant disagrees. Figure 2 clearly shows a belt position in which the protrusions are parallel to one another. Nonetheless, the Appellant attempted to overcome the rejection by deleting the phrase from claims 25 and 28 in a June 11, 2003 Response. In the June 27, 2003 Advisory Action, the Examiner did not even address the amendment to these claims and refused to enter any of the amendments because the amendment to claim 23 would raise new issues, which in no way relates to claims 25 and 28.

The amendment to claims 25 and 28 should be entered because it clearly simplifies the issues on appeal.

Rejections under §103II. Claim 1 is allowable over Osborn and Yamamura.

Claims 1, 3, 4, 7, 11, and 21-23 were rejected under §103 over Osborn in view of Yamamura. Osborn lacks the protrusions required by the Appellant's claims. Osborn teaches a "very thin and flexible" tape (col. 4, lines 17-18) so that it can be twisted. In fact, the tape is only 0.040" thick (col. 4, lines 27-32) of woven material such as used for seat belts so that it can be twisted. Osborn does not have a plurality of protrusions, which is required by claim 1.

The problem with the proposed combination is: how would one incorporate protrusions into a thin fabric tape that would be able to carry any load from the pulleys/sprockets? Simply put, there is no way to incorporate the timing belt of Yamamura with the fabric tape of Osborn and the proposed combination is improper. The Examiner has the burden of showing why one of ordinary skill in the art would modify Osborn with Yamamura based upon the teachings of those references. The Examiner cannot begin to meet this burden if it is not even apparent how one of ordinary skill in the art could modify the base reference to include features of the secondary reference. Specifically, the Examiner has failed to demonstrate how the thin belt of Osborn would incorporate the protrusions of Yamamura based upon the teachings of those references. How would one make protrusions out of the thin woven material that is "commonly used in seat belts?" The references provide no teachings to one of ordinary skill as to how this would be done.

The Examiner continues to ignore the incompatibility of the "belts" in each of the references. As a result, the references cannot properly be combined. The Examiner is using hindsight to combine these references, and the rejection must be withdrawn.

III. Claim 21 is allowable over Osborn and Yamamura.

Claim 21 requires a plurality of protrusions extending laterally across a width of the belt to opposing sides of the belt. This is not shown in Osborn. The Examiner simply states on page 7 of the March 31, 2003 Final Action that it would have been obvious because such a feature was “known.” This is not sufficient under MPEP 2143.01 since it does not provide a suggestion to modify Osborn and the Examiner has not established his prima facie case.

IV. Claim 22 is allowable over Osborn and Yamamura.

Claim 22 requires a plurality of protrusions that are tapered. This is not shown in Osborn. The Examiner simply states on page 7 of the March 31, 2003 Final Action that it would have been obvious because such a feature was “known.” This is not sufficient under MPEP 2143.01 since it does not provide a suggestion to modify Osborn and the Examiner has not established his prima facie case.

V. Claim 23 is allowable over Osborn and Yamamura.

Claim 23 requires the glass support member to be generally parallel with a rotational axis of the pulley. This is not shown in Osborn. The Examiner simply states on page 7 of the March 31, 2003 Final Action that it would have been obvious because such a feature was “known.” This is not sufficient under MPEP 2143.01 since it does not provide a suggestion to modify Osborn and the Examiner has not established his prima facie case.

VI. Claim 1 is allowable over LeCompagnon and Colell.

The Examiner relies upon Colell to provide a belt having a plurality of protrusions. The Examiner argues that the motivation to modify LeCompagnon would be “to provide a more efficient means for transmitting force between the motor and glass support member.” However, there is no teachings in the references to this effect. Why does the Examiner feel that LeCompagnon is inefficient? Why would one of ordinary skill use the belt of Colell instead? The Examiner is clearly picking and choosing elements from the reference to assemble all of the claim terms. LeCompagnon does not indicate that it is inefficient or would benefit from the belt of Colell. Again, under MPEP 2143.01, the mere fact that references can be combined is not sufficient to establish prima facie obviousness. As such, the rejection with the present motivation is unsupported by the references and cannot stand.

VII. Claim 6 is allowable over Osborn, Yamamura and Shibata.

The Examiner argues that Shibata discloses “stops defining open and closed positions” as required by claim 6. Appellant has carefully reviewed the text and drawings of Shibata and has found no such elements. There is no discussion in Shibata as to what defines the open and closed positions. The Examiner argued the stops are the brackets 24 and 28. The Examiner has not cited anything in the disclosure of Shibata for support. The Examiner is only speculating as to what if anything in Shibata discloses the stops. This is insufficient to sustain a rejection of the claims. For

example, Figure 4 seems to indicate that the window 56 would collide with the bottom of the door (in phantom) prior to the plate reaching the lower bracket 28.

On page 7, the Examiner suggests that Appellant define the stops, however, it is the duty of the Examiner to establish that the prior art teaches no elements of the claims. The Examiner has not done so.

VIII. Claim 12 is allowable over Osborn and Shibata.

Claims 12, 14-16, and 24 were rejected under §103 over Osborn in view of Shibata. Claim 12 requires spaced apart brackets supporting end portion of a belt. The Examiner relies upon Shibata for spaced apart brackets and argues that the motivation to one of ordinary skill in the art would modify Osborn with Shibata “to more securely mount the regulator bracket to the vehicle door.” However, Osborn does not benefit from the brackets of Shibata because it is already secured to the door using spaced apart brackets 22 (see Figure 2). What then would be the purpose of the brackets of Shibata? Again, the Examiner is using hindsight. There is no motivation to one of ordinary skill to make the modification argued by the Examiner.

IX. Claim 15 is allowable over Osborn and Shibata.

Claim 15 is also allowable for the reasons set forth above relative to claims 1, 6 and 12 (see headings II & VI-VIII).

X. Claim 24 is allowable over Osborn and Shibata.

Claim 24 requires a “glass support member...generally parallel with a rotational axis of [the] pulley,” which is not disclosed in either of the references. Osborn discloses a glass support member and pulley axis that are perpendicular, and Shibata is silent as to the orientation of the glass support member and pulley for an embodiment utilizing a flexible belt. Accordingly, claim 24 is allowable for this additional reason.

XI. Claim 20 is allowable over Osborn, Shibata and Yamamura.

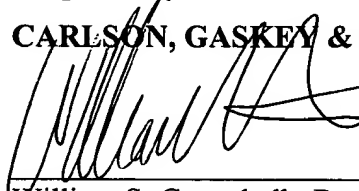
Claim 20 is allowable for the reasons set forth relative to claims 1 and 12 (see headings I, VI, VIII).

CLOSING

The Examiner has used hindsight in making the claims rejections and has merely picked and chose elements without providing a suggestion or motivation from the art to combine the references. The Examiner has provided “motivations” that find no basis in the references or that would be evident to one of ordinary skill in the art, and therefore, the Examiner cannot support the rejections.

For the reasons set forth above, the final rejection of all claims is improper and must be reversed. An early indication of such is earnestly solicited.

Respectfully submitted,
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CLAIMS APPENDIX

1. A regulator assembly comprising:
 - a glass support member for supporting a pane of glass;
 - a drive motor producing a drive force for moving said glass support member between open and closed positions;
 - a flexible belt having a profile with a plurality of protrusions, said belt interconnecting said drive motor and said glass support member; and
 - a pulley with a complementary profile to said profile of said flexible belt with said complimentary profile having a plurality of recesses receiving at least two of said plurality of protrusions, said pulley engaging said belt and moving said belt relative thereto in response to said drive force.
3. The assembly as set forth in claim 1, wherein said pulley is a drive pulley connected to said drive motor for receiving said drive force.
4. The assembly as set forth in claim 3, wherein said belt is a continuous loop supported between said drive pulley and a support pulley.
5. The assembly as set forth in claim 4, wherein said pulleys are supported by spaced apart brackets.

6. The assembly as set forth in claim 5, wherein said brackets include stops defining said open and closed positions.

7. The assembly as set forth in claim 1, further including spaced apart guides supporting said glass support member with said belt arranged generally parallel between said guides.

8. The assembly as set forth in claim 3, wherein said belt includes terminal ends fixedly supported by brackets with said pulley arranged between said brackets.

9. The assembly as set forth in claim 8, further including a drive support supporting a said drive motor and at least one idler pulley adjacent to said drive pulley for maintaining engagement between said belt and drive pulley, and said glass support member connected to said drive support.

10. The assembly as set forth in claim 8, wherein said belt includes end portions with stops defining said open and closed positions.

11. The assembly as set forth in claim 1, further including a rod supporting opposing portions of said belt to maintain a distance between said opposing portions during installation of the assembly onto a door.

12. A regulator door module for a door comprising:
- a panel adapted to be secured to the door;
 - a glass support member for supporting a pane of glass;
 - a drive motor producing a drive force for moving said glass support member between open and closed positions;
 - a flexible belt having a profile, said belt interconnecting said drive motor and said glass support member;
 - spaced apart brackets connected to said panel supporting opposing end portions of said belt; and
 - a drive pulley with a complementary profile to said profile of said flexible belt, said drive pulley connected to said drive motor with said drive pulley engaging said belt and moving said belt relative thereto in response to said drive force.
14. The module as set forth in claim 12, wherein said belt is a continuous loop supported between said drive pulley and a support pulley with said pulleys supported by said brackets.
15. The module as set forth in claim 14, wherein said brackets include stops defining said open and closed positions.

16. The module as set forth in claim 12, further including spaced apart guides secured to said panel supporting said glass support member with said belt arranged generally parallel between said guides.

20. The module set forth in claim 12, wherein said belt includes a plurality of protrusions and said pulley includes a plurality of recesses receiving at least two of said plurality of protrusions.

21. The assembly as set forth in claim 1, wherein said plurality of protrusions extend laterally across a width of said belt to opposing sides of said belt.

22. The assembly as set forth in claim 1, wherein said plurality of protrusions are tapered.

23. The assembly as set forth in claim 1, wherein said glass support member is generally parallel with a rotational axis of said pulley.

24. The module as set forth in claim 12, wherein said glass support member is generally parallel with a rotational axis of said pulley.

25. The assembly as set forth in claim 4, wherein said belt is untwisted with said protrusions being parallel to one another in a belt position.

26. The assembly according to claim 1, wherein said belt includes an unbroken outer surface with said protrusions extending in a direction opposite said outer surface.

27. The assembly according to claim 1, wherein said pulley includes spaced apart flanges with a portion of said belt located laterally between said flanges.

28. The assembly as set forth in claim 21, wherein said belt is untwisted with said protrusions being parallel to one another in a belt position.